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ABSTRACT

The results of testing some 1,265 first-grade students who took part in the Tutorial Reading Project for the full 1968-69 school year in Indianapolis are reported. Subjects were selected from the lower third of the first grade, based on Metropolitan Reading Readiness Test scores and teachers' judgments. Separate pretesting and post-testing was done for the 33 schools using the Ginn Basal Reader Series and for those six schools in which the Macmillan Basic Reader Series was used. Two conclusions were reached after evaluating the test results. (1) The tutorial reading program continues to produce large and statistically significant improvement in reading achievement. Roughly equivalent gains were found for children tutored in Ginn material and for children tutored in an experimental program designed for use with the Macmillan series. (2) A followup study of children tutored in 1966-67 and 1967-68 showed that the retention rate was significantly reduced by tutoring. Tables are included. (NH)

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REPORT OF RESULTS OF TUTORIAL READING PROJECT

Indianapolis Public Schools

1968-1969

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The aim of this project was two-fold; first, service, to provide individual instruction in reading as a supplement to classroom instruction in first-grade classes, and second, evaluation, to obtain information concerning the effectiveness of the tutoring procedures and the optimum conditions for their use.

The tutorial program for 1968-69 consisted of two parts. The major effort was a continuation of the programs for previous years using Ginn Tutorial materials and tutoring procedures in 33 schools which used the Ginn Basal Reader Series in their first grade classrooms. In the remaining six schools, which used the Macmillan Basic Reader Series, the program served as a try-out of newly devised tutoring procedures which utilized the Macmillan series and the workbooks which accompany it as tutoring materials.

Funds were provided from two sources. The primary source, for service aspects of the project, was ESEA Title I funds. These were used for payment of tutors, direct supervision and associated administrative services, and for scoring of tests used in evaluation of the results obtained. A smaller contribution was made through an Indiana University project supported by a research grant from the Ford Foundation. Funds from this source provided for technical supervision and analysis of evaluation data. These arrangements were similar to those of the previous school year.

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In this project first-grade classroom instruction in reading was supplemented by one 15-minute session of programed tutoring daily. Programed tutoring is a

technique of individual instruction developed at Indiana University during the past nine years and field-tested in several Indiana school systems, including, since 1964, the Indianapolis Public Schools. It is a highly structured procedure which can be carried out effectively by nonprofessional persons but it is designed to be maximally sensitive to the individual learning characteristics of the children who are taught. It is a teaching technique rather than a set of materials so that the subject matter taught can be determined entirely by the curricular requirements of the school system in which it is used.

During the 1968-69 school year 33 of the 39 schools included in the Tutorial Reading Project used the Ginn Basal Reader Series in the first grade, and 6 schools used the Macmillan Basic Reader Series. Tutoring in the schools using the Ginn series utilized the Ginn Tutorial Kit. In accord with the program prescribed by Ginn Tutorial, sight-reading was tutored from the basal reader series, which were also being used in the classrooms. Comprehension and word analysis was tutored from books included in the Ginn Tutorial Kit. In schools using the Macmillan Series, tutoring was based on experimental procedures which utilized the Macmillan pre-primers, primer and first reader and the accompanying workbooks. Sight-reading was tutored from the readers, comprehension and word analysis from the workbooks. The results of the tutoring programs based on the Ginn and the Macmillan series are evaluated separately below.

Described from the point of view of service, the 1968-69 project provided tutoring for a total of 1,711 children. They were chosen from the lower third of the first grade (predicted from Metropolitan Reading Readiness Test scores and teachers' judgments). Of these, 1,265 were tutored for the entire year. Others, who left school during the year and those who replaced these drop-outs on the recommendations of teachers, were tutored for part of the year, averaging approximately one-half year, and others were tutored during the summer. The breakdown is summarized in Table 1.

TABLE 1

CHILDREN TUTORED IN 1968-69

Duration of Tutoring	Ginn	Macmillan	Total
Full school year	1132	133	1265
Part of school year	268	50	318
Summer, 1969	128	-	128
Total	1528	183	1711

The evaluation of the effectiveness of the tutoring program is based primarily on comparisons of reading achievement test scores obtained at the end of the year for comparable samples of tutored and untutored children. Separate evaluations were made for the Ginn and Macmillan groups.

Pre-testing and Selection of Children to be Tutored

At the beginning of the year, children to be tutored and those included in the untutored control groups were selected as follows. Assignments to the experimental (tutored) and control groups were based on Metropolitan Readiness Test scores. Locally devised and individually administered vocabulary and alphabet tests were also given as pre-tests but not used for purposes of assignment to tutoring.

Children were ranked within each school on the Metropolitan Reading Readiness Test scores (parts 1-4 of the Metropolitan Readiness test). They were then assigned in order, beginning with the lowest scores, to experimental and control groups in such a way that the two groups were comparable except in number of cases, and all available tutoring time was filled. Approximately one-third (the lower third) of the first-grade children in each school were tutored. The assignments

were planned, allowing for drop-out rate of approximately 33 per cent, so that in the Ginn program approximately 100 children remained in the control group at the end of the year. In the Macmillan program an equal number of children were assigned to the experimental and control groups.

The effectiveness of the matching procedures is indicated in Table 2, which summarizes pre-test scores. No experimental-control group differences were significant except that for the Ginn Vocabulary Recall Test. The difference in this case favored the control group.

TABLE 2

PRE-TEST SCORES

Tests	Experimental M	Experimental σ	Control M	Control σ	Mean Diff. (E-C)	t	p
A. Ginn Evaluation*							
Met. Reading Readiness (Parts 1-4)	19.65	6.35	19.74	6.41	-0.09	.11	N.S.
Ginn Recall (Voc.)	0.38	1.40	0.92	2.40	-0.54	2.00	<.05
Alphabet	3.90	5.62	3.76	5.85	0.14	0.18	N.S.
B. Macmillan Evaluation**							
Met. Reading Readiness	24.53	7.94	23.61	8.55	0.92	0.90	N.S.
Macmillan Recall (Voc.)	0.81	1.78	0.81	1.77	0.00	0.00	N.S.
Alphabet	6.85	8.10	6.87	7.68	-0.02	0.02	N.S.

*N = 146 for experimental group; 96 for control group for Ginn Recall and Alphabet Pre-tests; and 97 for control group for Met. Reading Readiness Pre-test.

**N = 133 for experimental group, N = 132 for control group.

Mean scores on the Metropolitan Readiness test are low, indicating that a high proportion of the children fall in the "poor risk" category. Scores on the vocabulary recall tests are also low, indicating that the children can read very few of the words included in the primer vocabulary. Scores on the alphabet test are higher, indicating that many of the children have been taught to recognize some of the letters.

Tutoring on Ginn Material

At the end of the year the reading performance of children in the Ginn program was measured with the Ginn Vocabulary Recall test, the Alphabet test, the Ginn Pre-primer, Primer and First Reader Achievement tests, and the Metropolitan Achievement Elementary Battery I (First Grade).

Scores on these tests for the experimental and control groups are presented in Table 3, which also summarizes post-test data for the Macmillan study. These data are presented in greater detail on the attached report sheets.

In the Ginn study, comparison of scores for experimental and control groups on all of the individual and combined test scores show significant differences in favor of the tutored group. Comparison of pre- and post-test scores on the Ginn Vocabulary Recall and the Alphabet test indicate large gains which are obviously statistically significant.

It may be noted that the differences between scores on the Ginn Achievement Test scores for the experimental and control groups were smaller in 1968-69 than in the evaluation studies of the two preceding years. This change might be interpreted as a decline in effectiveness of the tutoring program over this period if it were not for the fact that the mean scores for the tutored group show a progressive increase over this period. The decrease in the difference scores is apparently produced by an increase in the mean scores for the control group. For example, total scores on the pre-primer and primer tests for the tutored groups

TABLE 3

POST-TEST SCORES

Tests	Experimental M	Experimental σ	Control M	Control σ	Mean Diff. (E-C)	t	p
A. Ginn Evaluation*							
Ginn Recall (Voc.)	11.78	3.30	9.20	4.81	2.58	4.61	<.001
Alphabet	23.25	5.57	20.38	9.07	2.87	2.79	<.01
Ginn Pre-primer	25.03	4.64	22.26	6.28	2.77	3.69	<.001
Ginn Primer	50.43	13.20	43.97	15.71	6.46	3.33	<.001
Ginn First Reader	56.57	18.96	50.47	19.53	6.10	2.40	<.02
Pre-primer and Primer Total	75.46	16.08	66.23	21.15	9.23	3.63	<.001
Pre-primer, primer and First Reader Total	132.03	40.43	116.70	42.61	15.33	2.79	<.01
Met. Ach., Elem. Battery I (1st Gr.)	52.94	13.78	49.22	14.60	3.72	1.98	<.05
B. Macmillan Evaluation**							
Macm. Recall (Voc.)	13.31	2.64	10.92	4.54	2.39	5.20	<.001
Alphabet	23.62	7.28	21.81	8.79	1.81	1.83	N.S.
Worlds of Wonder	85.46	25.92	73.79	27.69	11.67	3.53	<.001
Lands of Pleasure	80.56	28.61	72.93	26.85	7.63	2.23	<.05
Worlds of Wonder and Lands of Pleasure Total	166.02	53.19	146.72	53.01	19.30	2.95	<.01

*N = 146 for experimental group; N = 97 for control group.
**N = 133 for experimental group; N = 132 for control group.

were 71.9 in 1967, 75.5 in 1969, an increase of 3.6. For the control groups the corresponding scores were 58.9 in 1967, 66.2 in 1969, a difference of 7.3. This latter difference is of special interest; since the children in the control groups were not tutored, it presumably represents an improvement in the performance of the classroom teachers. These data confirm subjective observations concerning such improvement made by a number of teachers and principals. The Hawthorne effect may be responsible, but a more plausible account has been given by a number of teachers, who remarked that the tutoring of the problem readers gives them more time and increases their effectiveness in teaching those children who are not tutored (including, of course, the problem readers in the control group).

Tutoring on Macmillan Material

In schools using the Macmillan Basic Reader Series the tutoring was based on programs especially devised for use with this series. The materials used in tutoring included the Macmillan first grade pre-primers, primer and reader and the Macmillan workbooks. Sight-reading was tutored from the primers and reader using the same operational programs as are used with the Ginn series. Comprehension and word analysis was tutored from the workbooks, using operational programs similar to the Ginn Tutorial comprehension programs but modified to fit the format of items in the Macmillan workbooks.

Children in the Macmillan study were given the Metropolitan Reading Readiness Test, the Macmillan Vocabulary Recall test (an individually administered test consisting of a random sample of 15 words in the Macmillan Pre-primer vocabulary, which the child is asked to read), and the Alphabet test (an individually administered test consisting of 28 upper and lower case letters, which the child is asked to identify). Children were assigned to the experimental and control groups on the basis of the Metropolitan test scores, using the same procedure as was used in the Ginn study except that an equal number of children were assigned to the

two groups. Data in Table 2 indicate that the two groups did not differ significantly on any of the three pre-tests.

Reading achievement at the end of the year was measured for both groups on the Macmillan Vocabulary Recall test, the Alphabet test, and on preliminary editions of the Macmillan Mastery Tests designed to accompany the Primer (Worlds of Wonder) and First Reader (Lands of Pleasure). Mean scores obtained on these tests, together with the means for the total scores obtained on the last two, are shown in Table 3. All differences between the means for the experimental and control groups favor the experimental group and all are significant except for the Alphabet test. The magnitude of the differences on the Macmillan Primer and First Reader tests are larger than those obtained on the Ginn Primer and First Reader tests but no interpretation can be placed on this fact since the tests of the two series are not comparable either in length or content. On appearance, however, the Macmillan and Ginn tutorial programs were equally effective.

Effects of Previous Tutoring on Promotion and Retention

A special study was made to examine the effects of the tutorial program carried out in 1966-67 upon retention and assignment to special education classes. A similar study was made of the effects of the 1967-68 tutorial program upon retention. The tutoring program in both studies utilized Ginn material only.

Table 4 shows the class standings in May, 1969 of children who participated as experimental or control subjects in the evaluation of the tutorial program carried out with first grade children in 1966-67.

The overall effect of tutoring upon class assignment was significant at the .05 level ($\chi^2 = 7.62$, df = 2). Tutoring resulted in a 43% increase in the proportion of children who were consistently promoted, a 25% reduction in the proportion retained at the end of the first or second grade, and a 42% reduction in the proportion assigned to special education classes.

TABLE 4

CLASS STANDING IN 1969 FOR CHILDREN TUTORED IN 1966-67

	Tutored (1966-67)	Control (1966-67)	Change (Diff. / Control)
Tutored in 1966-67	245	126	
Located in May, 1969	160 (65.3%)	88 (69.8%)	
In 3d Grade in May, 1969	94 (58.7%)	36 (40.9%)	+43.5%
In 2nd Grade in May, 1969	49 (30.6%)	36 (40.9%)	-25.2%
In Spec. Ed. in May, 1969	17 (10.6%)	16 (18.2%)	-41.8%
Total	160 (100%)	88 (100%)	

Table 5 shows the class standings in May, 1969 of children who participated as experimental or control subjects in the evaluation of the 1967-68 tutorial program.

TABLE 5

CLASS STANDING IN 1969 FOR CHILDREN TUTORED IN 1967-68

	Tutored (1967-68)	Control (1967-68)	Change (Diff. / Control)
Tutored in 1967-68	751	108	
Located in May, 1969	470 (62.6%)	64 (59.2%)	
In 2nd Grade in May, 1969	367 (78.1%)	38 (59.4%)	+31.5%
In 1st Grade in May, 1969	103 (21.9%)	26 (40.6%)	-46.1%
Total	470 (100%)	64 (100%)	

The effect of tutoring upon class assignment (promotion vs. retention) was significant at the .01 level ($\chi^2 = 10.8$, df = 1). Tutoring resulted in an increase of 31 per cent in the proportion of children promoted and a reduction of 46 per cent in the proportion of children retained in the first grade.

Conclusions

1. The tutorial reading program continues to produce large and statistically significant improvement in reading achievement. Roughly equivalent gains were found for children tutored in Ginn material and for children tutored in an experimental program designed for use with the Macmillan Basic Reader Series.

2. A follow-up of children tutored in 1966-67 and in 1967-68 showed that the retention rate was significantly reduced by the tutoring.